

Reducing Sports Anxiety: A Comparative Study of Art Making with Guided Visual Imagery

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Dear Ms. Cataudella:

This letter serves to officially notify you of approval by the Albertus Magnus College IRB for you to conduct your study employing the methodology described in your IRB application. Please ensure that copyright protected material included in your study is properly protected as well as the confidentiality of your research participants.

Your study is authorized to begin as of the date of this approval letter and is valid for one year, ending on February 14th, 2021.

If you have any questions, please contact Hilda Speicher, Ph.D., the IRB Administrator, by phone at 203-773-8548 or by e-mail at hspeicher@albertus.edu.

Sincerely,

Sean P. O'Connell, Ph.D.
IRB Chair

Hilda Speicher, Ph.D.
IRB Administrator

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Abstract

Athletes experience a specific type of anxiety during the pressured situation of a competitive event. This research examined the potential use of art therapy combined with visualization to decrease sports anxiety. A pre/post Sports Anxiety Scale-2 was administered to 14 female college student athletes to measure change in anxiety levels. It was hypothesized that the combination of an art making directive with a guided visualization of a successful game-day scenario would decrease sports anxiety to a greater degree than using visualization alone. After guided visualization, ($n=7$) participants were randomly selected to engage in art making, creating a sport-specific expression of success; the other participants wrote about and reflected on visualization alone. The results showed a significant reduction in sport anxiety level for the art therapy group and visualization as compared to visualization only. The results of this study suggest that using art therapy and guided visualization have the potential in reducing sports anxiety.

Reducing Sports Anxiety: A Comparative Study of Art Making with Guided Visual Imagery

Student-athletes experience a high level of anxiety during their collegiate careers. Various methods have been developed to help them respond to these pressures, with the focus on decreasing anxiety (Smith et al., 2007). Some recent studies have indicated that non-verbal methods can also be effective in decreasing anxiety (Crane, 2009; Sandmire et al., 2016). Additionally, the American College Health Association (2013) stated that 42% of college students used the counseling center as a resource for dealing with anxiety symptoms, and 51% of those students reported feeling overwhelming anxiety within the year. Studying the effects of both art making and visualization techniques for reducing anxiety levels for student-athletes may also increase awareness of the non-traditional responses for these individuals.

The DSM-5 (American Psychiatric Association, 2013) identifies that symptoms of anxiety include restlessness or feeling keyed up or on edge, being easily fatigued, difficulty concentrating or mind going blank, irritability, muscle tension, and sleep disturbance [difficulty falling or staying asleep, or restless unsatisfying sleep (page 222)]. Anxiety can prevent an individual from achieving higher accolades in sports and success beyond the college level. The symptoms influence performance, but anxiety can also affect an individual outside of the sport (e.g. distress or impairment of functioning in social situations). Anxiety from athletic and social situations can compound and possibly become debilitating for individuals and disable their ability to function normally.

One manifestation of anxiety is when athletes *underperform* or “choke” during pressured situations of a competitive event (DeCaro et al., 2011). Masaki et al. (2017) posits three theories about underperforming and the impacts for the individual athletes. *Distraction* theory explains the process of “choking” as representing an increase of concern and anxiety about a situation and the outcome. More specifically, spending more time thinking about failure can distract the

individual and decrease performance. The *processing efficiency* theory describes how individuals exhibit a decrease in performance from excess worry. The *explicit monitoring* theory describes when there is an increase in anxiety and self-awareness about levels of performance, which results in a decrease in the use of motor skills. Outside of exhibiting anxiety during an event, student-athletes also respond to anxiety from other sources (e.g., self-generated, professors, and peer/family expectations).

There are different techniques and interventions, which have been used to alleviate anxiety and increase performance that can benefit athletes who experience symptoms of sports anxiety. McWhirter and McWhirter (1983) supported the use of guided imagery and visualization to desensitize and decrease anxiety for future situations and performances. They conducted anecdotal observations through case studies to describe performance improvements using relaxation and imagery training (RIT). It was hypothesized that after administering RIT the client would increase relaxation and improve performance levels. Relaxation techniques involved preparing an individual for anxiety-provoking situations using guided imagery and mental rehearsal. This concept follows the strategy of systematic desensitization, when an individual works through decreasing anxiety-provoking elements through exposure interventions (Wolpe, 1973).

The first case study followed and guided a runner through an upcoming race (McWhirter & McWhirter, 1983). The guided imagery focused on physical adjustments in the runner's neck muscles and environmental factors (i.e. other runners, crowd, weather, etc.). The RIT was administered in one-hour sessions twice per week for three weeks. Results were collected through self-report from the client and tracking performance through decrease in race times. The second case study followed a choir group who was struggling to stay in harmony and increase

emphasis to create the right sound for the emotions behind the notes/lyrics. The RIT focused on how to project and time the notes/lyrics individually and as a whole. The choir group used RIT to break down each stanza and listen to how each word was sung. The choir group was able to fix performance errors and sing more in unison. Results were collected through self-report of the choir group and evaluation of a judge at a competition. These two case studies examined theory, and anecdotal responses supported the notion that visualization can be a useful tool in decreasing anxiety and possibly increase performance for future situations.

Smith et al. (2007) conducted a study for six weeks using the PETTTLEP imagery intervention created by Holmes and Collin in 2001. It involves physical, environment, task, timing, learning, emotion, and perspective factors. Smith et al. administered the PETTTLEP on 48 varsity field hockey athletes (*Mean* age = 20.37 years). The 48 players had never received imagery training in the past and were randomly assigned to four different groups: sport-specific imagery (wearing uniform on the field), clothing imagery (wearing uniform and standing), traditional imagery (everyday clothes and seated), and a control group (reading field hockey literature). They administered the Movement Imagery Questionnaire-Revised (MIQ-R) to analyze how well each individual could create/use visual and kinesthetic imagery. The second study conducted by Smith et al. studied 40 junior gymnasts. The participants were assigned to four different groups: physical practice, PETTTLEP imagery, stimulus only imager, and control (stretching) groups. The researchers hypothesized that the physical imagery would be more effective than the PETTTLEP intervention and both would have more of an impact than the rest of the interventions. All participants documented difficulties from each session in a diary. The task being imagined for Study 1 was a field hockey penalty shot. The task consisted of the players' performing five shots prior to the pre- and post-test while being recorded. Points were given to

the players based on where each shot landed in the goal. For Study 2 the task was to imagine attempting a turning jump on a beam. The tasks were performed three times per week for the duration of each study.

After the pre-test task was over, the imagery script was administered. Each individual received personalized imagery based on information received by the player in both studies. All forms of imagery were significant in improving performance. The results showed that the PETTLEP intervention was more effective than the traditional intervention. The sport imagery, which parallels the PETTLEP the most, had the most significant impact, supported by the improved scores from the MIQ-R. The researchers concluded that the physical and environmental components could increase performance. The findings also support using imagery for athletes to increase performance and increase awareness to sports mechanics.

Studies have also shown a neural connection between emotion and motor behaviors. Aoki et al. (2019) examined how an individual perceives an event emotionally can affect performance and the level of anxiety within an individual. They conducted a study that linked a neural pathway from emotions perceived to motor response. The researchers noted that anxiety can affect performance, specifically “choking” under pressure, and they examined the neural link, located in the basal ganglia, which revolves around guiding behaviors and creating a response for the situation. Of importance was the idea that emotional responses to situations can impact how a situation is perceived and how one reacts to it. For example, when athletes are consciously aware of errors being made during a game, there is an increase in anxiety levels and possible effects on performance (Masaki et al., 2017).

There is a lack of research involving the specific use of art with athletes to reduce anxiety. However, there have been numerous studies that have shown a reduction of anxiety after

participating in art making using a variety of art media (Crane, 2009; Sandmire et al., 2016; Schindler, 2017). Sandmire et al. (2016) conducted research with outcomes that showed a significant reduction in anxiety using art interventions during stressful situations. The researchers investigated whether or not 30 minutes of art making would reduce anxiety in 47 college students. The study was conducted during final examinations to test participants during a stressful period. It was hypothesized that art making can reduce anxiety and the more structured the art directive, the larger the decrease stress/anxiety. All participants underwent three different art making (free-form painting, model clay, and colored mandalas) and control (social interactions) sessions in groups of four. Participants completed a physical and psychologically measure, the State-Trait Anxiety Inventory (STAI) and heart rate measures, before and after each activity. STAI results were compared to track the level of subjective anxiety in the participant and supported the use of art to reduce subjective anxiety. The second hypothesis from this study was not supported: the level of structure did not affect anxiety levels. However, the first hypothesis was supported, demonstrating that art making reduces anxiety, which further supports the use of art in general, disregarding the level of structure of the art material, to reduce anxiety.

Research has shown that art can also be used to increase visuospatial cognition (Schindler et al., 2017). Art can also aid in performance for athletes. It can also impact the experience of anxiety, since anxiety can color how one perceives an event and can change how one performs under pressure (Sandmire et al., 2016). A study on the effects of two art interventions on the processing and visuospatial cognition in participants was conducted by Schindler et al. (2017). Visuospatial cognition involves the use of spatial attention, retaining visual memory, performing mental rotations, etc. While preparing for an athletic event, individuals can use all of these skills

and Schindler et al.'s study can help determine how art can affect the level of performance supported by these skills.

The sample consisted of 113 adults who were healthy and had subjective memory complaints or who were healthy and had no complaints. The study was 10-weeks long, and the participants participated in the art interventions (not specifically stated) or in the control group, which consisted of interpreting different artworks from a museum. The researchers hypothesized there would be an improvement in processing speed and visuospatial cognition as a result of all art interventions. More specifically, involvement in a more active art intervention would be more productive in the reduction of symptoms over art evaluations/process interventions. The first hypothesis was supported by the data; there was a significant improvement in processing speed and visuospatial cognition as measured by self-report evaluations by the individuals, coaches, and judges. The data did not support the second hypothesis that cognition would increase over the 10-week period.

Anxiety and stress can also be impacted by the different art media choices during art therapy. Crane (2009) conducted a study involving 30 food service employees (18-58 years old) on how stress levels changed based on different levels of art media, which was based on higher to lower of impact of emotional expression through the use of pencil, clay, and watercolors. Crane noted that the more fluid and less restrictive the art media was, the higher the impact was for emotional expression. Stress levels were collected from a self-report STAI and physiological measures from blood pressure and heart rate. Crane hypothesized that clay would reduce stress more than the other art media. The results from the STAI support the use of clay and watercolors to reduce levels of stress in individuals. Crane (2009) supports that art making can decrease stress, but it also suggested the level of structure in the art material does have a significant

impact on how stress levels are reduced. This supports the need for further research on how the structure of art materials/art directives can affect the levels of stress and anxiety.

To date there is a paucity of literature regarding art interventions to alleviate student-athlete performance anxiety. The literature review describes how some researchers have used visualization interventions and art to aid in decreasing anxiety and increase performance levels. However, few studies have examined the combination of art and visualization related to sports performance. Previous studies were not as successful in measuring the intervention effects. Therefore, it is worth exploring the utilization of art in the reduction of sports anxiety as a potential therapeutic modality. The current study investigated the comparative impacts of art therapy and visualization towards decreasing sports anxiety in young adults who are student-athletes. Pre- and post-Sports Anxiety Scale-2 scores were used to measure the level of sports anxiety.

It was hypothesized in the present study that the combination of art therapy and participating in a guided visualization of a successful game-day scenario would decrease sports anxiety in student athletes to a greater degree than visualization alone.

Method

Participants

Due to the unexpected global pandemic, the sample consisted of 14 female student-athletes, rather than the 30 that had been planned. Participants were 18 to 21 years old ($M = 19.2$, $SD = 1.05$) who played on a Division III sports team (Swimming & Diving and Softball) at two small colleges in New England, USA. The sample consisted of 57% Caucasian, 36% Latinx/Hispanic, and 7% Caucasian and Latinx/Hispanic. Participants exhibited different levels of sports anxiety, determined by the Sports Anxiety Scale-2 administered to all participants at the

start of the study (42% received a high pre intervention anxiety score). Student athletes who were a part of the Softball Program at the college were excluded from this study due to a conflict of interest with the researcher.

Instruments

Sports Anxiety Scale-2

Smith, Smoll, & Schutz (2006) in 1990 created the Sports Anxiety Scale (SAS) to measure cognitive and somatic trait anxiety exhibited by athletes (Smith et al., 2006). The SAS was designed to measure sports anxiety through cognitive (worry and disruption in concentration) and somatic anxiety. Several factor analysis studies determined the SAS was not suitable for children; the comprehension/reading level was too advanced.

The Sports Anxiety Scale-2 (SAS-2) was developed to measure sports anxiety for both children and adults. The items from the SAS were modified to have stronger psychometric properties and greater readability of the items. The SAS-2 is a 15 item self-report scale, which is rated on a 4-point extent to experience scale (1-not at all, 2-a little bit, 3-pretty much, and 4-very much). The overall scores of the SAS-2 can range from 0-60. These scores are classified as high anxiety (35+) or low anxiety (below 20). Each subscale in the SAS-2 has five items: Somatic – items 2, 6, 10, 12, and 14; Worry – items 3, 5, 8, and 9; and Concentration Disruption – items 1, 4, 7, 13, and 15. Each subscale can be summed up to determine the overall score for all three subscales. The total SAS-2 score can be determined by adding up all 15 items in the scale.

Using a sample population consisting of children and young adult athletes, Smith et al. (2006) developed the SAS-2. The children (n = 1,038) were 9 to 14 years old, and the young adults (n = 1,294) were first-year college students who were involved in sports/athletic activities. Smith et al. used a cognitive-affective model to help with creating an initial set of 30 new items

that could better represent what the SAS-2 was proposed to measure. All participants completed the SAS and SAS-2 to compare constructive validity. Exploratory factor analyses (EFA) were used to select 15 items from the original 30 through the process of eliminating items that were skewed. Confirmatory factor analysis supported the use of the SAS-2 for all age groups.

SAS-2 reliability was tested through internal consistency and test-retest analyses. Internal consistency ratings were similar to the SAS, and each subscale's reliability coefficient was greater than .80. Test-retest reliability was .87 and supported a one-week retest period.

Comparing and correlating scores between multiple scales determined construct validity. Some scales were used to evaluate if the SAS-2 was measuring the intended construct and how it compared to similar evaluations. These scales showed a significant correlation with the SAS-2; these include the SAS, Perception of Success Questionnaire ego scales (achievement goals), ego scales for Motivational Climate Scale for Youth Sports (motivation), and Sport Competition Anxiety Test for Children. Some of the scales were used to confirm that the SAS-2 was not measuring constructs that were not associated with sports anxiety. These scales include task orientation of Perception of Success Questionnaire (achievement goals), task orientation skills of Motivational Climate Scale for Youth Sports (motivation), Washington Self-Description Questionnaire (self-esteem), Children's Social Desirability Scale, and Performance Failure Appraisal Inventory (perceived competence).

The current study modified the SAS-2 in the description of the scale to accurately describe the items stated in the scale. The original scale stated, "Please read each question" and the current study modified it to, "Please read each statement." The formatting of the statements was also modified to fit onto a single sheet of paper in larger font, by eliminating repetitive

information. The scoring key was also eliminated to ensure participants did not create a bias for questions based on the anxiety categories (Somatic, Worry, and Concentration Disruption).

Materials

Participants in the experimental group (art therapy) were given 8 inches x 11 ½ inches (20.32 cm x 29.21 cm) white drawing paper; 4 inches x 6 inches (10.16 cm x 15.24 cm) stencils of different athletic movements that were sport-specific to the participant (i.e. Swimming and Softball; Appendix A); a standard No. 2 pencil; and a set of 24 Crayola® water-color pencils. Participants in both conditions were given one black pen to complete the handouts. The music that played in the background during the guided visualization was “Calming Music” by Deep Sleep Project (2016).

Procedure

All participants were recruited using names from a roster provided by the athletic department of the college/university. Additionally, a flyer (Appendix B) was distributed around campus. Participants were guaranteed free pizza and soda at the session as incentive. Half the sessions took place in the counseling center office on the private college campus and the other half took place in a closed off room in a hotel. All forms that were completed by the participants were collected and stored in folders marked by numbers and kept in a secure location.

The participants were randomly assigned to either the art therapy group (experimental; $n = 7$) or visualization group (comparison; $n = 7$) by flipping a coin. Participants were instructed to sign up for a session the day before a game. Two sessions were administered, each session had a group of seven participants (each group engaged in the same condition). Participants were instructed to arrive five minutes before the set session time. In addition, they were instructed not

to discuss the discourse of the study with any other individuals, even those who were in the same group.

The day before the session, an email reminder was sent to each participant, stating the time and place of the study. Participants arrived and were given an Informed Consent to read and sign (Appendix C). After these were collected, copies were distributed back to the participants. Contact information for each participant was collected and contact information for the researcher was then distributed.

To begin the experimental phase, participants in both conditions were given a black pen to complete the SAS-2. Next, they were asked to take a few minutes to take deep breaths and relax before the guided imagery. Each person listened to a 10-minute pre-recorded guided imagery script that asked them to fully imagine the playing field/environment of the specific sport that the student-athlete participated on/in (Appendix D). The researcher asked the participants to close their eyes (or hold a soft gaze) and envision a successful game-day scenario. Calm music played lightly in the background during this part of the session. After the guided imagery was over, the researcher encouraged each participant to continue visualizing the scenario that had come to mind, uninterrupted for five more minutes. Next, participants completed a set of five questions on the process of the visualization/guided imagery (Appendix E). For example, one question asked the participants to explain how it felt to visualize a successful game-day scenario. After the visualization was over, participants completed another set of five questions about the visualization images (Appendix F). For example, one question asked the participants to list what emotions were present from visualizing the image. After completing the set of process questions, the visualization group was provided with 10 more minutes to re-imagine the visualization on her/their own.

In the experimental condition, participants were given an art making directive after completing the visualization and the visualization process questions. They were given white drawing paper, a No. 2 pencil, and sets of 24 watercolor pencils, as well as appropriate stencils that were sport specific for each athlete. Each stencil showed whole bodies in motion in sport activity. Participants selected one stencil from five stencil images of different athletic movements in each sport and traced it on the white paper. They were then directed to use the colored pencils to respond to the guided imagery with colors, shapes, and forms in any way they would like. They had the option to use the colored pencils as either dry coloring tools or by adding water to create a watercolor effect. They were shown how the watercolor pencils can be used either way or as a combination of both. Additionally, participants were informed that the imagery could be abstract or figurative. Participants were given up to 15 minutes to complete the art making. The art therapy group participants then completed a set of five questions about the artwork (Appendix G). For example, one question asked the participants to describe the use of color throughout the image.

Concluding, all participants in both groups completed the SAS-2 as a post-test measure. The participants were given a Demographic Questionnaire (Appendix H) to fill out and return to the researcher. Both conditions were given the Debriefing Statement (Appendix I) and Art Release Form (Appendix J) at the end of the session. If the art release form was signed, a copy was provided to the researcher and the originals went back to the participants. Participants had the opportunity to ask the researcher any questions regarding the study and provided consent to receive the aggregate results of the study. To see methods comparing the two groups, please refer to the Group Outline Table (Appendix K).

Results

The data collected were analyzed using the Statistical Package for the Social Sciences (SPSS). Overall, for the initial SAS-2 the sample's mean score was 33.7 ($n = 14$). This indicates a medium level of sports anxiety, leaning more towards a high level, based on the parameters from Smith, Smoll, & Schutz (2006) for low (below 20), medium (21-34), and high (35+) sports anxiety. Overall, the sample had a mean score of 10.6 out of 20 for the initial Somatic subscale, 13.4 out of 20 Initial Worry subscale, and 9.2 out of 20 for the Concentration Disruption subscale.

A 2 x 2 mixed Analysis of Variance (ANOVA) with the within subject variable of time (pre vs. post) and between subject variable of group (art therapy vs. visualization) was first run on the total scores of the SAS-2. Refer to Table 1 for a description of SAS-2 pre- and posttest total means and standard deviations (SD) and change scores for both the art therapy and visualization group. There was a significant main effect of time, as there was a 2.6 point mean decrease in SAS-2 score from pre- to posttest, $F(1, 12) = 12.79, p < .05$. Even though the mean raw score difference for groups was 9.4, the main effect was not statistically significant, $F(1, 12) = 3.38, p > .05$. For the key effect, the interaction between group and time, there was a significant effect, as the art therapy group demonstrated a SAS-2 mean score decrease that was 5.1 points larger than for the visualization group, $F(1, 12) = 12.79, p < .05$.

Table 1

Sports Anxiety Scale-2 (SAS-2) Pre-/Posttest Mean and Standard Deviation by Group

Measure/Group	Pretest Score		Posttest Score		Pre/Post Change
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>
AT with V	39.7	10.3	34.6	10.5	5.1
V only	27.7	8.06	27.7	9.73	0

Note. AT represents Art Therapy and V represents Visualization.

Next, a 2 x 2 mixed Analysis of Variance with the within subject variable of time (pre vs. post) and between subject variable of group (art therapy vs. visualization) was run on the SAS-2 Somatic sub-category mean scores (see Table 2 for relevant means and standard deviations). There was a significant main effect of time, as there was 1.0 mean decrease in Somatic score from pre- to posttest, $F(1, 12) = 5.32, p < .05$. The mean raw score difference for groups was 4.0, which was also a significant main effect, $F(1, 12) = 7.25, p < .05$. For the key effect, the interaction between group and time, there also was a significant effect, as the art therapy group demonstrated a Somatic score mean decrease that was 2.4 points larger than for the visualization group, $F(1, 12) = 6.83, p < .05$.

Table 2

Somatic Subscale Pre-/Posttest Mean and Standard Deviation by Group

Measure/Group Somatic Subscale	Pretest Score		Posttest Score		Pre/Post Change
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>
AT with V	13.3	2.75	11.0	2.65	2.3
V only	8.0	2.58	8.1	3.72	-.10

Note. AT represents Art Therapy and V represents Visualization.

A third 2 x 2 mixed Analysis of Variance with the within subject variable of time (pre vs. post) and between subject variable of group (art therapy vs. visualization) was run on the scores of the SAS-2 Worry sub-category (see Table 3 for related means and standard deviations). There was not a significant main effect of time, as there was only .36 point decrease in Worry score from pre- to posttest, $F(1, 12) = 2.78, p > .05$. While the mean raw score difference for groups was 4.5, this main effect was not significant either, $F(1, 12) = 3.40, p > .05$. For the key effect, the interaction between group and time, the art therapy group demonstrated a Worry mean difference of 1.0 point larger than the visualization group, which was a significant effect, $F(1, 12) = 5.44, p < .05$.

Table 3*Worry Subscale Pre-/Posttest Mean and Standard Deviation by Group*

Measure/Group Worry Subscale	Pretest Score		Posttest Score		Pre/Post Change
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>
AT with V	15.9	5.52	15.0	5.92	.90
V only	10.9	3.02	11.0	3.06	-.10

Note. AT represents Art Therapy and V represents Visualization.

A final 2 x 2 mixed Analysis of Variance with the within subject variable of time (pre vs. post) and between subject variable of group (art therapy vs. visualization) was run on the scores of the SAS-2 Concentration Disruption sub-category (see Table 4 for relevant means and standard deviations). None of the effects were significant, $F(1, 12) < 1.81$, $p > .05$.

Table 4*Worry Subscale Pre-/Posttest Mean and Standard Deviation by Group*

Measure/Group Concentration Disruption Subscale	Pretest Score		Posttest Score		Pre/Post Change
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>
AT with V	10.6	4.83	10.0	5.54	.60
V only	8.9	3.76	8.6	3.91	.30

Note. AT represents Art Therapy and V represents Visualization.

Discussion

This research examined the impact of art and visualization compared to visualization only by using a pre/post Sports Anxiety Scale-2, as responses to sports anxiety. Specifically, the research was designed to study the effects of an art making directive after visualization of a successful game day scenario for college student athletes. Data analysis using ANOVA examined the interaction between the two groups and time. These results showed a significant difference for individuals, thus supporting the hypothesis that the combination of art therapy and visualization decreased sports anxiety more than visualization alone. The subsequent hypothesis related to the subscales (Somatic, Worry, and Concentration Disruption) was mostly supported.

The key interaction between group and time was supported for two of the three subscales; Somatic and Worry.

Additionally, because this study examined athletic performance, it was important to examine implications for somatic anxiety. This has been described as feeling pain or discomfort in your body while feeling anxious (Smith et al., 2006). The findings of this study are in alignment with Sandmire et al. (2016). Both concluded that art making combined with visualization decreased somatic anxiety more so than visualization alone. The cognitive anxiety response of Worry data resulted in greater decrease in sports anxiety over time for the art therapy group, which affirms the research Smith et al. (2007) conducted with athletes who used the VMBR. This finding is also consistent with the Schindler et al. (2017) study that found that art interventions improved processing speed and visuospatial cognition, thus correlating with improved sports performance.

Art therapy in combination with visualization resulted in a decrease in sports anxiety scores for all participants in the art therapy group. In contrast, participants in the visualization only group showed inconsistent results towards decreasing sports anxiety. There has been limited research on art therapy combined with visualization with sports, however this study is a step towards producing more empirical evidence for this particular population. Relevant to the art materials used for this study, Crane (2009) found that the use of watercolors showed a significant decrease in anxiety scores when compared to other art materials. This was a similar finding during this study, as the combination of creating an art piece with watercolor pencils may have impacted how participants were able to process and understand their anxieties about sports performance. This contrasts with Sandmire et al. (2016) conclusion that the level of structure (control) over materials does not affect anxiety levels. Crane, however, found that the use of

unstructured (less controlled) materials such as watercolors and clay, produced more expression in artwork. This is consistent with an informal qualitative analysis of the artwork produced during this study. It appeared that those participants who used more watercolor techniques with the colored pencils may have also shown a greater decrease in sports anxiety than those who stuck to more traditional dry colored pencil technique. However, due to a small sample size and the absence of statistical analysis, this impression could not be investigated.

A closer examination of some of the artworks produced during this study conveys some common themes that may represent a relationship between art making and a decrease in sports anxiety. A theme of clear and uncluttered imagery emerged in the artwork of participants whose sports anxiety scores decreased the most. For example, Figure 1 displays a free-style swimmer surrounded by layers of yellow, orange, pink, and purple boundaries. The participant, an 18-year old female, expressed that no matter the pressures being experienced during her swim meet that thinking and surrounding herself in positivity and happiness decreased her anxiety and improved her performance. This is also seen in Figure 2, drawn by a 20-year old swimmer, which represented a clear state of mind and focus on the positive in order to have less anxiety and perform to the best of her ability. Her image conveys this with the symbol of crossing the finish line. Both participants who drew Figures 1 and 2 used more watercolor techniques, which supports Crane's conclusion (2009) that less structured (more fluid) art materials reduced anxiety more than colored pencils.

In contrast, the theme of tense anxiety in artwork was seen for those participants whose anxiety did not decrease much. A 20-year old swimmer drew Figure 3, and her artwork displayed a cluster of tense and anxious line work that surrounds the swimmer. The watercolor pencils were used more for drawing, as she did not add in the watercolor element. The participant stated

that performing increases too many internal expectations that create too much pressure and anxiety; it was hard to imagine a successful game day scenario. The use of dry and structured color pencils did not support as great a decrease in anxiety, again supporting Crane's (2009) conclusions and contradicting Sandmire et al. (2016). Reviewing the artwork and responses to the process questions, it appears that using more watercolor techniques allowed participants to let go of their anxiety and increase clarity around how to be in a less anxious performance mindset. This implies that the fluid quality of watercolors created a way to be more mindful and clearheaded. Overall, the artworks that conveyed an internal locus of control with graphic blocking out of negative thoughts and emotions did correspond to those who subsequently showed a decrease in sports anxiety scores. The theme of clarity that was expressed in the artwork was related to decreasing the control of outside factors and negative thoughts.

The findings from this study have relevance for clinical art therapy work and applications for athletes, coaches, and trainers. Additionally, the use of group visualization was new and showed promising results. Visualizations have been used to improve athletic performance by breaking down the mechanics of movement in order to perfect it, which then increases confidence with the goal of decreasing sports anxiety. Sports teams could possibly benefit from the group interventions used in this study, in order to decrease anxiety and increase performance during a game/match/meet. Those who were not athletes could use this combination of interventions. For example, art and visualization could possibly be used in a work setting to reduce anxiety about public speaking for presentations or conferences. It may possibly decrease anxiety when performing on stage for singing, dancing, or acting.

The study did have limitations that most likely affected the results. In response to the COVID-19 pandemic, data collection was terminated early. This resulted in a sample size that

was smaller than anticipated, which affected the power of the study. A larger sample can increase power to detect differences that actually exist. A small sample size also resulted in a less diverse sample consisting of only females and small groups differing in ethnicity and race. With a larger sample there can be more possibilities of recruiting all genders, ethnicities, race, socioeconomic backgrounds, and wider range of sports sampled to support results that represent the larger population. Additionally, because of the global pandemic, data collection was conducted in two different environments. This may have affected how the participants perceived the study including the level of focus on the materials, as some data collection occurred while athletes were having spring training off campus, in another state. Another limitation may have been the research design of using a single session and a short time period between pre and post scores. Changing the study from a one-time intervention to a longitudinal study with multiple sessions might produce some new and interesting information for the field of art therapy.

Further research is needed to examine more fully how the use of art therapy can impact sports performance more directly. This might be done by replicating the current study and including a sports performance measure. Future research might also explore the combination of art therapy and visualization with other populations who could benefit from decreased performance anxiety. For example, the intervention can be used for individuals during work presentations, public speaking, or in general for social anxiety. In addition, future research can focus on modifying the current study by using different art materials, such as clay or other three-dimension materials. Tactile sensations and physically moving the hands can possibly affect anxiety more than watercolors (Crane, 2009).

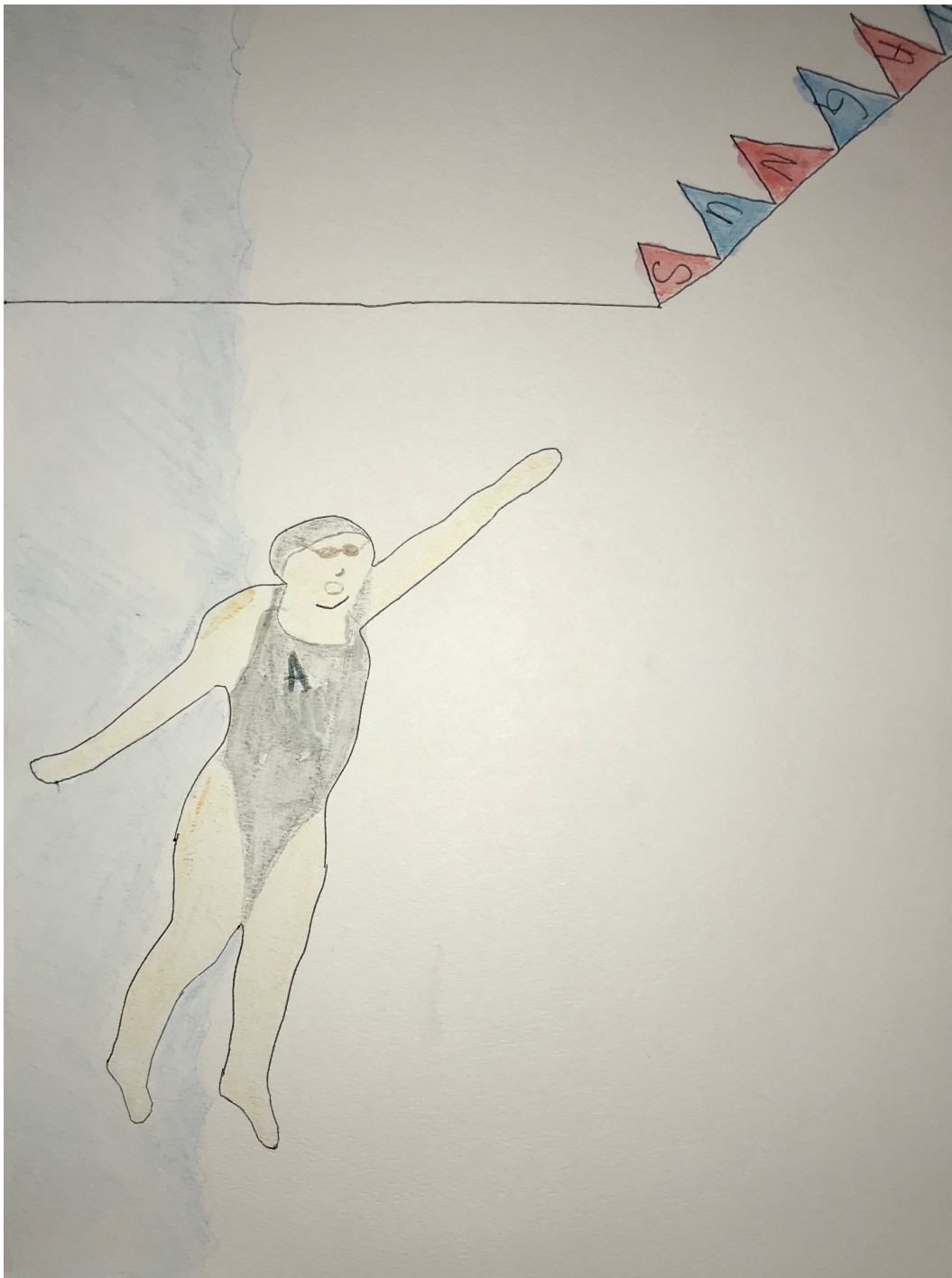
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Figure 1*Rainbow*

Note. A freestyle swimmer painted by an 18 year old female with highest decrease in anxiety from pre to post SAS-2 scores.

Figure 2*I'm Back*

Note. A backstroke swimmer painted by a 20 year old Caucasian female with high decrease differences for SAS-2 scores.

Figure 3

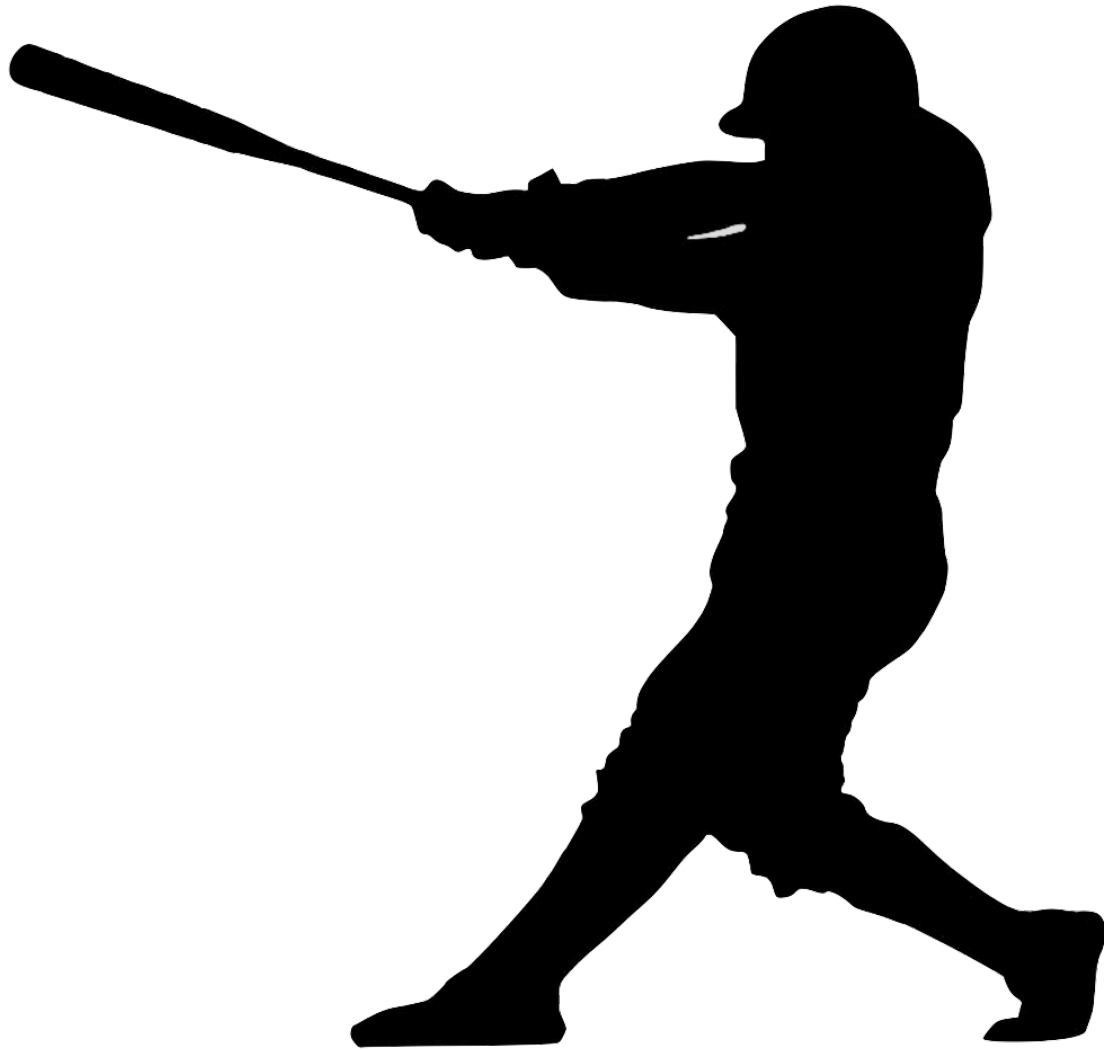
Expectations



Appendix A

Art Sports Stencil

(Not to size – 4" x 6")



Appendix B

Recruitment Flyer

ARE YOU A STUDENT-ATHLETE?

Seeking Participants!

Graduate Art Therapy & Counseling
Thesis Research on Sports Performance

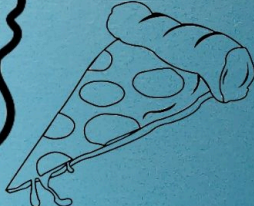


**18+ years old
Student-Athletes**

**1 HOUR
SESSION**



**FREE
DRINKS!**



**FREE
PIZZA!**

**Contact for more Info/Scheduling
Rachel Cataudella - rmcataudella@albertus.edu**

Appendix C

Consent Form

Consent Form: Sports Study

Dear Participant,

I am conducting research to fulfill the requirements for the Master of Arts in Art Therapy and Counseling degree. The purpose of my study is to examine *sports performance through visualization*.

This study will ask participants to fill out a basic demographic questionnaire and reactions to sports scale of how you are feeling that should take about 10 minutes. Participants are then asked to participate in 1 session of sports visualization, which will take around 30 minutes. Participants will be randomly assigned to either process their sports visualization or draw their sports visualization. Artistic skill is NOT required.

There are no risks anticipated, although answering questions about your current feelings may result in feeling stress. Potential benefits include discovering a way to process, understand, and improve sports performance.

Your participation and responses are confidential, which means your identity will not be connected with the data collected. Only the researcher will view the data collected. All records will be kept in secure locations including computers that are password protected and locked cabinets in secure office space. You will not be identified in any reports on this study. Your coaches will NOT be given or spoken to about your results or participation in this study. Your participation is voluntary. You may withdraw at any point without any penalty or prejudice.

The Institutional Review Board (IRB) at Albertus Magnus College has approved this study. If you have any further questions or concerns, feel free to contact the researcher, art therapy and psychology advisors, and chair of the IRB for further information or help, thank you.

The Investigator:
Rachel Cataudella
rmcataudella@albertus.edu

Art Therapy Advisor:
Abbe Miller, Ph.D., ATR-BC, LPC
amiller@albertus.edu

Chair of IRB:
Hilda Speicher, PhD
hspeicher@albertus.edu

Psychology Advisor:
Loel N. Tronsky, PhD
ltronsky@albertus.edu

☐ I willingly consent to participate in this study. I understand that all data is confidential and that I am free to withdraw from this study at any point. I am 18 years or older.

Signature: _____ Date: _____

Appendix D

Guided Imagery Script

Guided Imagery Script – Successful Game Day Scenario

Please find a comfortable position in your seat. Ground yourself by placing both feet firmly on the ground and taking some deep breathes. Find your breath rhythm and follow it as you allow your body and mind to relax.

As your body becomes relaxed, imagine yourself feeling the sensations of your equipment

Hands. Notice how your hands feel holding your equipment. (Are they tense, steady, do your hands feel secure around the equipment). What textures are you feeling on your equipment (smooth, rugged, wet, dry, etc.)? Now as you begin to move, does this sensation change? What do you notice about your hands? Really, pay attention to the small details in these movements.

Body. As you become aware of these movements, shift your thoughts to how the rest of your body feels. Take a moment to notice how the rest of your body reacts to holding your equipment.

As you become accustomed to the sensations of your equipment. Shift your imagery to the environment of the playing field (*change per sports: grass/dirt/turf*).

Ground. Notice how your feet are positioned on the ground. What kind field are you standing on? As you begin to move your feet, how do they move across the ground, is it hard or soft. Do you feel and see any traction between your movements?

Crowd. As you become aware of the ground surrounding you, take notice to the other people in the crowd. Are the stadiums/bleachers full? Are they cheering, do you hear any external noises. Do the sounds echo throughout the field?

As you become aware of your surroundings, shift your focus to the task at hand. How is your body moving throughout the motion (throwing, batting, running)?

Thoughts. What thoughts are going through your mind (are you more present or thinking ahead)? If a negative thought passes through your mind, push it away and focus on successfully performing the action. Feel confident moving through your entire motion.

Emotions. What emotions are arising as you execute this motion? Again, please push aside negative emotions and focus on the positive – excitement, pride, or hope.

As you become aware of your thoughts and emotions, shift your attention to the speed in which you are executing your action.

Timing. Are you running at full speed? Do you feel the wind against your body as you are performing this action? Take notice to how your body moves throughout the process. Are you putting pressures on a certain parts of your body? Do you feel yourself following through? Take a moment to process your skills. Please note of the skills you currently possess as you imagine this process.

Finally, you have imagined all of the other components of this action from a first person perspective. Lets take a step back and visualize yourself as a spectator/coach/another player. What do you notice about yourself performing this action?

Please take a few moments to review all these elements on your own.

Appendix E

Visualization Process Questions

Visualization Process Questions: Sports Study

1. Did you visualize a successful game day scenario? (Please circle one)

Yes

No

2. How successful was your game day scenario? (Please circle one)

1

2

3

4

5

(Not Successful)

(Completely Successful)

3. How did it feel to visualize a successful game day scenario?

4. Do you see yourself executing this for the upcoming game?

Yes

No

5. How mentally prepared are you for this upcoming game? (Please circle one)

1

2

3

4

5

(Not Successful)

(Completely Successful)

Appendix F

Guided Meditation Process Questions

Guided Meditation Process Questions: Sports Study

What scenario did you visualize?

Describe the environment of the scenario (e.g. crowd, players, weather, etc.)

What emotions are arising from visualizing this scenario?

What is your visualization saying to you?

Appendix G

Art Therapy Process Questions

Art Therapy Process Questions: Sports Study

What scenario did you draw?

Describe the environment of the scenario/art (e.g. crowd, players, weather, etc.).

What emotions are arising from looking at your image?

What is your art saying to you?

What is the title of your artwork?

Appendix H

Demographic Questionnaire

Demographic Questionnaire**Age:** _____ **Projected year of Graduation:** _____**Gender you identify as (check all that apply):**

- | | |
|--------------------------------------|---|
| ☐ Male | ☐ Not Listed |
| ☐ Female | ☐ Prefer not to answer |
| ☐ Transgender | |

Race/Ethnicity you identify as (check all that apply):

- | | |
|---|---|
| ☐ Black/African American | ☐ Latinx/Hispanic |
| ☐ American Indian or Alaska Native | ☐ Not Listed |
| ☐ Asian or Pacific Islander | ☐ Prefer not to answer |
| ☐ Caucasian/White | |

Major/Minor (if you do not know put Undecided): _____**How many hours per week do you spend at school/doing schoolwork?** _____**Are you currently employed?** Yes No **Hours at work per week?** _____**What sports team are you affiliated with?** _____**How many hours per week do you spend for your sport (practice/games/workouts)?** _____**Do you participate in any extracurricular activities?** Yes No**How many hours per week do you spend participating in extracurricular activities?** _____**Do you have any injuries that could affect your performance level?** Yes No**What sports action do you want to improve:** _____**What do you do to reduce your anxiety before a game (check all that apply)?**

- | | |
|--|--|
| ☐ Perform Rituals | ☐ Listen to Music |
| ☐ Use Distractions | ☐ None |
| ☐ Deep Breathing Techniques | ☐ Other: _____ |

Appendix I

Debriefing Statement

Debriefing Statement: Sports Study

Thank you for participating in this study. Your participation was greatly appreciated. The goal of the current study was to see how visualization combined with art therapy could affect college student-athletes' sports anxiety levels. Half of the participants were assigned to the Visualization group and half to an Art therapy group. By doing so, I am able to compare the results of the two groups.

I expect that the combination of visualizing a successful game day scenario and art therapy will decrease the levels of sports anxiety in college student-athletes more than visualization on its own. In an effort to preserve the integrity and validity of this ongoing study, I ask you to please not discuss what was done throughout this study with anyone else.

If you are interested in learning more about our topic, please refer to the journal articles below:

1. *Psychological and autonomic effects of art making in college-aged students.* (Sandmire, D. A., et al., 2016)
2. *Measurement of Multidimensional Sports Performance Anxiety in Children and Adults: The Sports Anxiety Scale-2.* (Smith, D. Wright, et al., 2007)
3. *Increasing human potential: Relaxation and imagery training (RIT) with athletic and performing art teams.* (McWhirter, J. J., & McWhirter, M. C., 1983)

If you have any questions, concerns or if you would like to know the results of the study when it is over, you may contact the researcher with the following email rmcataudella@albertus.edu. Results cannot be individualized; they can only be shared in aggregate.

Thank you again!

Rachel Cataudella

Appendix J

Art Release Form

Art Release Form: Sports Study

I give permission to the researcher to photograph my artwork created during the Sports Anxiety Study for Education purposes, indicated below.

I understand that all photographs and observations will be presented in a respectful and professional manner. I understand that the participants name will not be connected to the artwork. I understand that my artwork is my property.

I agree to have my artwork photographed without identifying information for the following purpose(s), please check any and all that apply:

- ☐ Educational and training purposes
- ☐ Presentation at professional conference
- ☐ Publication in a professional journal
- ☐ None of the above

I hereby give consent as noted above for the use of my artwork

Printed Name

Date

Signature

Please note that if at a later date you choose to withdraw permission for your artwork to be shown as noted above, it may be difficult or impossible to contain images already disseminated in public settings.

- ☐ I have received a copy of this form for myself.

Appendix K

Group Outline Table

Visualization Group (<i>comparative</i>)	Art Therapy Group (<i>experimental</i>)
Informed Consent	Informed Consent
Sports Anxiety Scale-2 (SAS-2)	Sports Anxiety Scale-2 (SAS-2)
Guided Meditation	Guided Meditation
Visualization Process Questions I	Visualization Process Questions I
Guided Meditation II	Art Therapy Directive
Guided Meditation Process Questions	Art Therapy Process Questions
Sports Anxiety Scale-2 (SAS-2)	Sports Anxiety Scale-2 (SAS-2)
Demographic Questionnaire	Demographic Questionnaire
Debriefing Statement	Art Release Form
-	Debriefing Statement